CIVIL AIM CONSULTANTS & ENGINEERS

(Building Geo-Tech & Highway Materials Testing Laboratory)

An ISO 9001-2015 Certified Company

NABL Accredited As Per ISO/IEC 17025:2017 Laboratory

Job No: CACE/BBMP/AEE/YNK/QC/W-01/2021-22

Test Report

Project Name	Construction of Compound Wall and Improvements to Yelahanka Govt High School Premises at Yelahanka Old Town in Ward No-01
Client	The Asst Executive Engineer, Yelahanka Sub Division, BBMP
Mix Type	PCC(1:4:8)
Contractor	Sri.G.Venkate Gowda
Test Method	IS : 4031 (Part 5) -1988 & Specification for Road & Bridge Works, MORT&H, Rev-V.
Material	Cement
Sample No	1
Sample Collected Date	3-May-2021
Test Date	5-May-2021

Consistency test

	Trail No	Weight of Cement	Percentage of water added (%)	Weight of Water (gm)	Initial Reading of Plunger (mm)	Difference (mm)
Consistency test of Cement	1	400	28.5	114	40	19
	2	400	28.0	112	40	18.5
	3	400	29.0	116	40	10
	4	400	28.0	112	40	6.5
	5	400	30.0	120	40	5

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Results: Standard Consistency of Cement: 30.50%

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Test Report

Project Name	Construction of Compound Wall and Improvements to Yelahanka Govt High School Premises at Yelahanka Old Town in Ward No-01
Client	The Asst Executive Engineer, Yelahanka Sub Division, BBMP
Mix Type	PCC(1:4:8)
Contractor	Sri.G.Venkate Gowda
Test Method	IS : 4031 (Part 5) -1988 & Specification for Road & Bridge Works, MORT&H, Rev-V.
Material	Cement
Sample No	1
Sample Collected Date	3-May-21
Test Date	5-May-21

Fineness Test of Cement

Sl. No.	Weight of Cement Sample	Weight Cement Sample Retained on 90μm Sieve (gms)	Fineness of Cement (%)	Average (%)
1	100 gm	5.55	5.55	7.01
2	100 gm	6.28	6.28	
3	100 gm	9.2	9.2	

Results: Residue of cement is: 7.01%

Comments: Maximum allowable residue by mass for ordinary portlad cement is 10%

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Test Report

Project Name	Construction of Compound Wall and Improvements to Yelahanka Govt High School Premises at Yelahanka Old Town in Ward No-01
Client	The Asst Executive Engineer, Yelahanka Sub Division, BBMP
Mix Type	PCC(1:4:8)
Contractor	Sri.G.Venkate Gowda
Test Method	IS : 4031 (Part 3) -1988 & Specification for Road & Bridge Works, MORT&H, Rev-V.
Material	Cement
Sample No	1
Sample Collected Date	3-May-2021
Date	5-May-2021

Soundness Test of Cement

Sl. No.	Description	Trial 1	Trial 2	Trial 3
1	Initial Distance between the indicator points of Lechatelier mould	11	10	11
2	Final Distance between the indicator points of Lechatelier mould	12	18	15
3	Difference or expansion	1	8	4
4	Average Differences or Expansion in mm		4.33	

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Results: Difference in Expansion of Cement: 4.33mm
Comments: Maximum allowable Expansion of cement is 10mm.

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Test Report

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Client	The Asst Executive Engineer, Yelahanka Sub Division, BBMP
Mix Type	PCC(1:4:8)
Contractor	Sri.G.Venkate Gowda
Test Method	IS : 4031 (part 6)-1988 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Material	Cement
Size of cubes	70.60x70.60x70.60mm
Cross Sectional Area	4984.36 mm2
Sample No	1
Sample Collected Date	3-May-2021
Test Date	10-May-2021

Compressive strength of Cement

Cube	Cement Grade	Age at Test (Days)	Weight (kg)	Density (kg/m3)	Max. Load (KN)	Area (mm2)	Compressive Strength (N/mm2)	Average Sample (n/mm2)
1	43	7	1.00	2278.03	186	4984.36	37.32	36.82
2	43	7	1.00	2278.03	181	4984.36	36.31	

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Results: 7-days Compressive strength of cement is 36.82N/mm^2

Comments: 7-days Compressive strength of cement should not be less than 33 N/mm^2

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Test Report

Project Name	Construction of Compound Wall and Improvements to Yelahanka Govt High School Premises at Yelahanka Old Town in Ward No-01
Client	The Asst Executive Engineer, Yelahanka Sub Division, BBMP
Mix Type	PCC(1:4:8)
Contractor	Sri.G.Venkate Gowda
Test Method	IS: 2116 & IS : 2386 (Part - 1) 1963 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	At site
Material	Fine Aggregates
Sample No	1
Sample Collected Date	3-May-2021
Test Date	5-May-2021

Gradation of Fine Aggregate

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Weight of Sample(gram): 200

Sl No.	IS Sieve Size	Weight retained	% retained	% Cumulative	Cumulative % of Passing		Remarks
					% Passing	Gradation limits	
1	10 mm	0	0.00	0.00	100.00	100	Gradation satisfies the MORT&H Zone II Specification for PQC
2	4.75 mm	14	7.00	7.00	93.00	90-100	
3	2.36 mm	18	9.00	16.00	84.00	75-100	
4	1.18 mm	5	2.50	18.50	81.50	55-90	
5	600 μ	56	28.00	46.50	53.50	35-59	
6	300 μ	58	29.00	75.50	24.50	8-30	
7	150 μ	33	16.50	92.00	8.00	0-10	

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Test Report
Gradation test

Project Name	Construction of Compound Wall and Improvements to Yelahanka Govt High School Premises at Yelahanka Old Town in Ward No-01
Client	The Asst Executive Engineer, Yelahanka Sub Division, BBMP
Mix Type	PCC(1:4:8)
Contractor	Sri.G.Venkate Gowda
Test Method	IS : 2386 (Part - 1) 1963 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Material	Coarse aggregates
Sample No	1
Sample Collected Date	3-May-2021
Test Date	5-May-2021

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Gradation of Coarse Aggregate

Weight of Sample: 4000 gms

AE.E

Sl.No	I.S. Sieve size	Weight Retained (gm)	of weight Retained (%)	Percentage of weight retained (%)	Cumulative % of Passing		Remarks
					Test Result	Limits as per MORT&H	
1	31.50	0	0.00	0.00	100.00	100	
2	26.50	528	13.20	13.20	86.80	85-95	
3	19.00	291	7.28	20.48	79.53	68-88	
4	9.50	625	15.63	36.10	63.90	45-65	
5	4.75	455	11.38	47.48	52.53	30-55	
6	0.60	971	24.28	71.75	28.25	8-30	
7	0.15	823	20.58	92.33	7.68	5-15	
8	0.08	258	6.45	98.78	1.22	0-5	

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Test Report

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Client	The Asst Executive Engineer, Yelahanka Sub Division, BBMP
Mix Type	PCC(1:4:8)
Contractor	Sri.G.Venkate Gowda
Test Method	IS : 2386 (Part - 3) 1963 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Material	Coarse aggregates
Sample No	1
Sample Collected Date	3-May-2021
Test Date	5-May-2021

Water Absorption of Coarse Aggregate

Sl. No.	Particulars	Computations	Test Numbers		Mean
			Test 1	Test 2	
1	Weight of SSD sample	W_1 g	800	800	
2	Wt of Basket Filled with Aggregates Immersed in water	W_2g	1958	1964	
3	Weight of Saturated Aggregate in water	W_3g = W_2- W_1	1158	1164	
4	Weight of saturated surface dry aggregate in Air	W_3 g	1993	1989	
5	Weight of water equal to the Volume of the Aggregate	W_3- W_s	835	825	
6	Weight of Oven dried Aggregate	W_4g	1954	1960	
7	Specific Gravity	W_4/(W_3- W_s)	2.34	2.38	2.36
8	Apparent Specific Gravity	W_4/(W_4- W_s)	2.45	2.46	2.46
9	Water Absorption	(W_4- W_3)*100/ W_4	2	1.48	1.74

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Comments: Maximum allowable Aggregate Water Absorption value is 2.0%.

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Test Report

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Client	The Asst Executive Engineer, Yelahanka Sub Division, BBMP
Mix Type	PCC(1:4:8)
Contractor	Sri.G.Venkate Gowda
Test Method	IS : 2386 (Part - 4) 1963 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Material	Coarse aggregates
Sample No	1
Sample Collected Date	3-May-2021
Date	5-May-2021

Impact Test of Coarse Aggregate

Sl. No.	Determination	Unit	Trails	
1	Weight of the Aggregate before compaction, W1	gm	500	500
2	Weight of the sample passing through 2.36 mm IS sieves after Impact, W2	gm	194	188
3	Weight of the sample retained on 2.36 mm IS sieve after Impact,W3	gm	306	312
4	Aggregate Impact Value (W2 / W1)x100	%	38.80	37.60
5	Specified Limit	%	45.00	

Results: Average Aggregate Impact Value: **38.20 %**

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Test Report
Gradation test

Project Name	Construction of Compound Wall and Improvements to Yelahanka Govt High School Premises at Yelahanka Old Town in Ward No-01
Client	The Asst Executive Engineer, Yelahanka Sub Division, BBMP
Contractor	Sri.G.Venkate Gowda
Test Method	IS : 2386 (Part - 1) 1963 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Material	Coarse aggregates (40mm)
Sample No	1
Sample Collected Date	3-May-2021
Test Date	5-May-2021

Weight of Sample: 4000 gms

Sl. No	I.S. Sieve size	Weight Retained (gm)	Percentage of weight Retained (%)	Cumulative Percentage of weight retained (%)	Cumulative % of Passing		Remarks
					Test Result	Gradation Limits as per MORT&H	
1	63.00	0	-	-	-	-	
1	40.00	0	0	0	100	95-100	
1	20.00	1205	30.125	30.125	69.875	30-70	
1	12.50	-	-	-	-	-	
1	10.00	2650	66.25	66.25	33.75	10--35	
1	4.75	1210	30.25	96.5	3.5	0-5	

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Test Report
Gradation test

Project Name	Construction of Compound Wall and Improvements to Yelahanka Govt High School Premises at Yelahanka Old Town in Ward No-01
Client	The Asst Executive Engineer, Yelahanka Sub Division, BBMP
Contractor	Sri.G.Venkate Gowda
Test Method	IS : 2386 (Part - 1) 1963 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Location	At site
Material	Coarse aggregates (20mm)
Sample No	1
Sample Collected Date	15-Nov-2019
Date	30-Nov-2019

Weight of Sample: 4000 gms							
Sl. No	I.S. Sieve size	Weight Retained (gm)	Percentage of weight Retained (%)	Cumulative Percentage of weight retained (%)	Cumulative % of Passing		Remarks
					Test Result	Gradation Limits as per MORT&H	
1	40.00	0	0	0	100	100	
1	20.00	192	4.8	4.8	95.2	95-100	
1	12.50	-	-	-	-	-	
1	10.00	2105	52.63	52.63	47.38	25-55	
1	4.75	1500	37.50	90.13	9.88	0-10	

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Test Report
Gradation test

Project Name	Construction of Compound Wall and Improvements to Yelahanka Govt High School Premises at Yelahanka Old Town in Ward No-01
Client	The Asst Executive Engineer, Yelahanka Sub Division, BBMP
Contractor	Sri.G.Venkate Gowda
Test Method	IS : 383-1970
Location	At site
Material	Fine Aggregates, For Concrete
Sample No	1
Sample Collected Date	3-May-2021
Test Date	5-May-2021

Weight of Sample(gram): 200

Sl No.	IS Sieve Size	Weight retained	% retained	% Cumulative	Cumulative % of Passing		Remarks
					% Passing	Gradation limits	
1	10 mm	0	0.00	0.00	100.00	100	
2	4.75 mm	6	3.00	3.00	97.00	95-100	
3	2.36 mm	2.5	1.25	4.25	95.75	95-100	
4	1.18 mm	10	5.00	9.25	90.75	90-100	
5	600 μ	18	9.00	18.25	81.75	80-100	
6	300 μ	85	42.50	60.75	39.25	15-50	
7	150 μ	54	27.00	87.75	12.25	0-15	

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Test Report
Solid block

Project Name	Construction of Compound Wall and Improvements to Yelahanka Govt High School Premises at Yelahanka Old Town in Ward No-01
Client	The Asst Executive Engineer, Yelahanka Sub Division, BBMP
Job No	Job No: CACE/BBMP/AEE/YNK/QC/W-01/2021-22
Contractor	Sri.G.Venkate Gowda
Location	Bay
Material	Soild block
Sample No	1
Date	27-Jul-2021

SL.NO	Failure Load in KN.	CHARACTERISTIC COMPRESSIVE STRENGTH, fck , in, N/Sq.mm	AVG CHARACTERISTIC COMPRESSIVE STRENGTH, fck in N/Sq.mm	REMARKS
1	471	5.85	5.87	
2	468	5.8		
3	475	5.95		

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Results: Compressive strength of solid block is 5.87N/mm2

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Test Report

Project Name	Construction of Compound Wall and Improvements to Yelahanka Govt High School Premises at Yelahanka Old Town in Ward No-01
Client	The Asst Executive Engineer, Yelahanka Sub Division, BBMP
Mix Type	Concrete(M15)
Contractor	Sri.G.Venkate Gowda
Test Method	IS : 4031 (part 6)-1988 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Material	Concrete
Size of cubes	150x150x150mm
Cross Sectional	22500mm2
Sample No	1
Sample Collected Date	7-Jun-2021
Test Date	5-Jul-2021

AE-1

A.E.E

Compresive strength of Concrete

Cube	Concrete Grade	Age at Test (Days)	Weight (kg)	Density (kg/m^3)	Max Load (KN)	Area (m^2)	Compressive Strength (N/mm^2)	Avg. Strength
1	15	28	5.00	1481.48	354	22500.00	15.73	15.78
2	15	28	5.00	1481.48	359	22500.00	15.96	
3	15	28	5.00	1481.48	362	22500.00	16.09	
4	15	28	5.00	1481.48	358	22500.00	15.91	
5	15	28	5.00	1481.48	345	22500.00	15.33	
6	15	28	5.00	1481.48	352	22500.00	15.64	

Results: 7-days Compressive strength of cement is 15.78N/mm2

Note:

i.The results indicated above are based on the tests carried out on the sample at site.

ii.The results relate only to the items tested.

iii.This test report should not be reproduced except in full, without written approval of this

iv.Any query regarding the report must be reported immediately.

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Test Report

Project Name	Construction of Compound Wall and Improvements to Yelahanka Govt High School Premises at Yelahanka Old Town in Ward No-01
Client	The Asst Executive Engineer, Yelahanka Sub Division, BBMP
Mix Type	Concrete(M20)
Contractor	Sri.G.Venkate Gowda
Test Method	IS : 4031 (part 6)-1988 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Material	Concrete
Size of cubes	150x150x150mm
Cross Sectional Area	22500mm2
Sample No	1
Sample Collected Date	3-Aug-2021
Test Date	31-Aug-2021

Compressive strength of Concrete

Cube	Concrete Grade	Age at Test (Days)	Weight (kg)	Density (kg/m^3)	Max. Load (KN)	Area (mm^2)	Compressive Strength (N/mm^2)	Avg. Strength
1	20	28	5.00	1481.48	520	22500.00	23.11	23.34
2	20	28	5.00	1481.48	525	22500.00	23.33	
3	20	28	5.00	1481.48	528	22500.00	23.47	
4	20	28	5.00	1481.48	530	22500.00	23.56	
5	20	28	5.00	1481.48	520	22500.00	23.11	
6	20	28	5.00	1481.48	528	22500.00	23.47	

AE-1

Results:28-days Compressive strength of cement is23.34 N/mm2

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Test Report

Project Name	Construction of Compound Wall and Improvements to Yelahanka Govt High School Premises at Yelahanka Old Town in Ward No-01
Client	The Asst Executive Engineer, Yelahanka Sub Division, BBMP
Mix Type	Concrete(M20)
Contractor	Sri.G.Venkate Gowda
Test Method	IS : 4031 (part 6)-1988 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Material	Concrete
Size of cubes	150x150x150mm
Cross Sectional Area	22500mm2
Sample No	2
Sample Collected Date	7-May-2021
Test Date	14-May-2021

Compressive strength of Concrete

Cube	Concrete Grade	Age at Test (Days)	Weight (kg)	Density (kg/m^3)	Max. Load (KN)	Area (mm^2)	Compressive Strength (N/mm^2)	Avg. Strength
1	20	7	5.00	1481.48	325	22500.00	14.44	14.16
2	20	7	5.00	1481.48	315	22500.00	14.00	
3	20	7	5.00	1481.48	320	22500.00	14.22	
4	20	7	5.00	1481.48	311	22500.00	13.82	
5	20	7	5.00	1481.48	315	22500.00	14.00	
6	20	7	5.00	1481.48	325	22500.00	14.44	

AE-1

Results: 7-days Compressive strength of cement is 14.16 N/mm2

A.E.E

For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

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AEE

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(Building Geo-Tech & Highway Materials Testing Laboratory)

An ISO 9001-2015 Certified Company

NABL Accredited As Per ISO/IEC 17025:2017 Laboratory

Ref No: CACE/BBMP/AEE/YNK/QC/W-01/2021-22

Test Report

Project Name	Construction of Compound Wall and Improvements to Yelahanka Govt High School Premises at Yelahanka Old Town in Ward No-01
Client	The Asst Executive Engineer, Yelahanka Sub Division, BBMP
Mix Type	Concrete(M20)
Contractor	Sri.G.Venkate Gowda
Test Method	IS : 4031 (part 6)-1988 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Material	Concrete
Size of cubes	150x150x150mm
Cross Sectional Area	22500mm2
Sample No	2
Sample Collected Date	7-May-2021
Test Date	4-Jun-2021

Compressive strength of Concrete

Cube	Concrete Grade	Age at Test (Days)	Weight (kg)	Density (kg/m³)	Max. Load (KN)	Area (mm²)	Compressive Strength (N/mm²)	Avg. Strength
1	20	28	5.00	1481.48	530	22500.00	23.56	23.50
2	20	28	5.00	1481.48	535	22500.00	23.78	
3	20	28	5.00	1481.48	520	22500.00	23.11	
4	20	28	5.00	1481.48	535	22500.00	23.78	
5	20	28	5.00	1481.48	525	22500.00	23.33	
6	20	28	5.00	1481.48	528	22500.00	23.47	

AE-1

A.E.E

AE

Results: 28-days Compressive strength of cement is 23.50N/mm2

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No: CACE/BBMP/AEE/YNK/[illegible]/2021-22 **Accredited As Per ISO/IEC 17025:2017 Laboratory**

Test Report

Project Name	Construction of Compound Wall and Improvements to Yelahanka Govt High School Premises at Yelahanka Old Town in Ward No-01
Client	The Asst Executive Engineer, Yelahanka Sub Division, BBMP
Mix Type	Concrete(M20)
Contractor	Sri.G.Venkate Gowda
Test Method	IS : 4031 (part 6)-1988 & Specification for Road & Bridge Works, MORT&H, Rev. V.
Material	Concrete
Size of cubes	150x150x150mm
Cross Sectional Area	22500mm2
Sample No	1
Sample Collected Date	11-May-2021
Test Date	8-Jun-2021

Compressive strength of Concrete

Cube	Concrete Grade	Age at Test (Days)	Weight (kg)	Density (kg/m^3)	Max. Load (KN)	Area (mm^2)	Compressive Strength (N/mm^2)	Avg. Strength
1	25	28	5.00	1481.48	575	22500.00	25.56	25.83
2	25	28	5.00	1481.48	590	22500.00	26.22	
3	25	28	5.00	1481.48	585	22500.00	26.00	
4	25	28	5.00	1481.48	598	22500.00	26.58	
5	25	28	5.00	1481.48	574	22500.00	25.51	
6	25	28	5.00	1481.48	565	22500.00	25.11	

Results: 28-days Compressive strength of cement is 25.83N/mm2

For CIVIL AIM CONSULTANTS & ENGINEERS

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Job No: CACE/BBMP/AEE/YNK/QC/W-01/2021-22

Test Report
Interlock pavers

Project Name	Construction of Compound Wall and Improvements to Yelahanka Govt High School Premises at Yelahanka Old Town in Ward No-01
Client	The Asst Executive Engineer, Yelahanka Sub Division, BBMP
Contractor	Sri.G.Venkate Gowda
Location	Bay
Material	Interlock pavers
Sample No	1
Date	13-Sep-2021

SL.NO	DETAILS	FLEXURAL STRENGTH fcr in mpa	CHARACTERISTIC COMPRESSIVE STRENGTH, fck , in, N/Sq.mm	AVG CHARACTERISTIC COMPRESSIVE STRENGTH, fck in N/Sq mm
1	Paver Block	3.95	35.5	35.73
2	Paver Block	3.85	35.9	
3	Paver Block	3.8	35.8	

Results: s Compressive strength of Interlock pavers is 35.73 N/mm2

Note:

i. The results indicated above are based on the tests carried out on the sample at site.

ii. The results relate only to the items tested.

iii. This test report should not be reproduced except in full, without written approval of this laboratory.

iv. Any query regarding the report must be reported immediately.

AB1

AEE

AE

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